DOCUMENT RESUME

ED 235 651 EC 160 808

AUTHOR Somwaru, Jwalla P.
TITLE Assessment of Basic Competencies: A Functional Approach to the Assessment of Learning Disabilities.
PUB DATE Jul 83
NOTE 28p.; Paper presented at the CEC National Conference on the Exceptional Black Child (Atlanta, GA, July 24-27, 1983). For a related document, see ED 229 943.
PUB TYPE Guides - Non-Classroom Use (055) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Basic Skills; *Diagnostic Tests; Elementary Secondary Education; Evaluation Methods; *Handicap Identification; *Learning Disabilities; *Student Evaluation; *Testing
IDENTIFIERS *Assessment of Basic Competencies

ABSTRACT

A functional approach to the assessment of learning disabilities (LD) is proposed in the light of confusing and ambiguous guidelines for identifying students with LD. Problems in the current evaluation procedures include the concept that ability and achievement are separate dimensions of intellectual functioning and the potential for biased assessments with norm-referenced tests. Research is reviewed on terms used to describe behavioral manifestations (dyslexia and reversals, hyperactivity and hyperkinesis, perceptual-motor impairment and training). The Assessment of Basic Competencies (ABC), a functional approach, is described as an effort to determine children's competencies in skills important for learning in school. The ABC consists of items measuring three clusters of skills: information processing (observing skills, organizing skills, and relating skills), language (understanding words, comprehending expressions, producing expressions, decoding, and reading), and mathematics (understanding numbers and operations, understanding concepts, and solving problems). The test's format emphasizes the developmental nature of the assessment, while diagnostic information is also produced on which systematic instruction can be based. Advantages of the ABC are noted. (CL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED235651

ASSESSMENT OF BASIC COMPETENCIES: A FUNCTIONAL APPROACH TO THE ASSESSMENT OF LEARNING DISABILITIES

Name of author: Jwalla P. Somwaru, Ed.D.
Position: Assessment Specialist
Institution: Division of Special Services,
Minnesota Department of Education,
Address: 550 Cedar St., St. Paul, MN 55014

FL 165 808

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Jwalla Somwaru
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

Historically, learning disabilities have been defined in terms of neurological impairments and perceptual deficits. Although Public Law 94-142 lists some behavioral characteristics of learning disabled children, it still makes necessary the inference of neurological cause. In current educational practice, however, the term learning disabled is often used to include children with a wide variety of learning problems. Current law and practice require the measurement of ability and achievement, and the determination of a severe discrepancy. A functional approach to assessment is here proposed. Eleven areas that are important for learning in school were identified by the author in the three domains Information Processing, Language, and Mathematics, and tests were developed to assess the student's competence in each scale. Specific learning disabilities are described in terms of deficits in these 11 test areas, and the test report provides information which may be used in the design of appropriate instruction.

ASSESSMENT OF BASIC COMPETENCIES: A FUNCTIONAL APPROACH TO THE ASSESSMENT OF LEARNING DISABILITIES

The concept of learning disability.

Most children receiving special education have learning problems. They are not coping with learning in school like other children, and a large proportion of them are labeled as learning disabled. In 1969, McCarthy and McCarthy wrote:

> To some, learning disabilities means children with a specific kind of impairment, while to others it is a generic term meaning all those children whose primary problem lies in their incapacity to utilize ordinary school procedures for learning. (p. xi)

Today, the position has not changed, and it is this division of opinion among professionals in special education and the mainstream that causes confusion among teachers and parents.

It is interesting to note the origin and subsequent use of the term learning disability. Cruickshank gave this explanation in a recent interview with an editor of The Directive Teacher (Cruickshank, 1980):

> By 1963 we had done some writing dealing with the exogenous retarded and the cebral palsied so that there was something in the literature. Newell Kephart's volume came out in 1960, and I had one in 1961. By 1963, then, the parents had quite a bit to read. There were 18 or 19 different parent organizations in the United States at that time. By chance some heroic people got representatives of these groups together in Chicago in the spring of '63 and asked Sam Kirk to come and talk to them, and he did.

I received a letter from Sam just the other day which points out a great problem from that meeting, and I can summarize it easily and quickly. He, too, was not sure what to call these children or how to define them. But he did say to the parents that the children were not primary mentally retarded, and they were not primary blind, primary deaf, or primary something else. The adjective he used was primary. The parents, however, heard him say that the children were not primarily mentally retarded and not primarily something else.

The next day the parents decided to call themselves the Association for Children with Learning Disabilities, words he had dropped throughout the previous evening. After stating that the children were not primarily mentally retarded (which is not what Kirk said), the parent groups went on to include an I.Q. cut-off above that point.

Something "funny" seems to have happened, but nevertheless, this misinterpretation resulted in the formation of a national organization with a name which was broadly interpreted to include a variety of children with manifest learning problems.

Cruickshank, following in the tradition of the pioneers in the field who were strongly oriented towards a neuropsychological approach (chiefly Strauss, Werner, and Goldstein), has consistently used the term brain injured to describe children who are learning disabled, and has always insisted that learning disability is essentially a neurological phenomenon. In a presentation in 1978, he said (Cruickshank, 1978):

Thus, in 1964 the leadership agreed to use the term learning disabilities, and this group was oriented to the neuropsycho-

logical basis of the problem. No sooner had the term been released to the general professional disciplines and to parents that a myriad of other concepts was attached to it. To the educator, the term learning disabilities soon meant anything which affected the learning progress of the child.

Regardless of the state of confusion in the field, P.L. 94-142 and sunsequent regulations gave learning disabilities a firm place among the conventional categories of handicap, and issued guidelines for its assessment and determination. In 1979-80, learning disabled children comprised the largest group among handicapped children served under this law (approximately 32 percent of all hancdicapped children, who numbered about 4 million in the U.S.A.), and this proportion has not significantly changed over the years. The guidelines for assessment imply neurological impairment without explicitly stating so: the child is considered learning disabled if the team finds performance not comensurate with age and ability,finds a severe discrepancy between ability and achievement, and cannot attribute the cause of low performance to primary dysfunctions or to environmental deprivation. However, it is believed by many specialists in the field that only a small proportion of these children classified as learning disabled in our schools have neurological impairments; the rest have learning problems attributable to environmental causes.

One of the problems associated with an etiology based on neuropsychology is that positive evidence of neurological insult does not necessarily imply a learning problem (Kinsbourne, 1973). One is therefore left with a situation in which learning problems are evident, but in which causes are not so evident. In the literature of the recent

past, one finds expressions such as minimal brain damage, neurophysiological dysfunction, hyperkinesis, hyperactivity, motor dysfunction, perceptual processing deficit, dyslexia, and dyscalculia as explanations of the cause or nature of learning disabilities. In the current literature one finds more use of expressions such as "splintered" learning, attention deficits, impulsive behavior, poor learning habits, dyspedagogia, and emotional disturbance as causes or characteristics of these children's learning behaviors. But whatever may be the attributed cause, it is evident that the manifest educational problems of most of these children identified as learning disabled are the same, that is to say, they cannot carry out logical operations, read, write, use language, or do arithmetic as well as others. And there is only one way to remedy these educational deficits, and that is to teach children the required skills and concepts in a very systematic fashion. Since the educational treatment for the manifest school problems of most of these children is the same, the question arises as to whether it is more productive to pursue cause or to develop techniques for managing the instructional problems. An advertisement for a recent publication Teaching Reading to Slow and Disabled Learners by Kirk, Kliebhan and Lerner contained this note: "Here's a contemporary how-to-do-it book by authorities in special education.... Included are step by step directions for teaching phonics, sound blending, and word analysis plus suggestions for building advanced readers' skills in structural analysis and comprehension."

Now that learning disabled children are being identified by procedures outlined by the federal government regulations, can it be assumed that children are accurtately being identified for this category

of handicap? Some recent research findings give us an uneasy feeling. In a comparative study Ysseldyke, Algozzine, Shinn, and McGue found extensive overlap in the learning characteristics of children identified as slow learners and as learning disabled in the same school. It was noted that 96% of the scores on a battery of psychoeducational tests were within a common range, and that the performance of the two groups was identical in many of the subtests. In another study on a related issue Algozzine, Ysseldyke, and Shinn (1980) found that identification as learning disabled was more a function of the difinition used rather than the discovery of a definite learning syndrome. Students identified by the use of a guidline such as a discrepancy of 1 to 1.5 standard deviations between ability and achievement in at least one of four areas were not so identified by the application of the Woodcock Psychoeducational Battery. One begins to wonder what the "real thing" is, and whether it can be accurately identified.

Current Procedures for Evaluation and some Associated Problems .

The Procedures for Evaluating Specific Learning Disabilities, described in Federal Rgister of December 29, 1977, are out of necessity widely used for implementing Public Law 94-142 in order to acquire funding. In order to determine whether performance is comensurate with age and ability, one needs to use norm-referenced tests of ability and achievement. While intelligence tests are not specifically named, they are universally used to arrive at a measure of ability, and standard scores on conventional tests of achievement are compared with I.Q. in order to evaluate whether a severe discrepancy exists. The first problem inherent in this procedure is the shift of emphasis from qualitative to

quantitative assessment. This process uses relative standing in terms of numbers to determine if a child fits into a category, and does not indicate what the child knows and can do, or what are his/her educational needs. It is possible that some compulsive diagnosticians will make observations about strengths and weaknesses of children in general areas as they test, but this is not usaually done in a comprehensive or systematic fashion. The importance of the quantitative assessment overshadows the importance of the qualitative assessment to the extent that the latter is not usually done.

A second problem grows out of the conception of ability and achievement as separate dimensions of intellectual functioning. Ability, or intelligence, is conceived as a capacity for learning that is independent of what is learned. Intelligence tests are supposed to measure this capacity, while achievement tests are supposed to measure the product of learning. When achievement is lower that ability, the existence of a learning disability is inferred. In Piaget's view intelligence is constructed in the process of interaction with the environment. Hunt describes intelligence as learned strategies for processing information. These strategies are usually generalized from simpler specific learnings. Gagne's cumulative model conceptualizes the relationship as follows: what is actually learned becomes the capacity for acquiring further learning. On the other hand, both types of tests for ability and achievement measure rather similar types of cognitive processes and content. It is thus difficult to make a strong case for a distinction between ability and achievement, and to view a measure of discrepancy as scientific information upon which a serious classification can be made.

When a severe discrepancy is considered to exist, bearing in mind that the size of discrepancy is defined diffenently by various school districts, what inference can be drawn? According to the regulations, a learning disability must be inferred if certain specified organic, emotional, and environmental causes can be ruled out. And this inference brings with it a presumption of a neuropsychological impairment. It is probably easy to rule out organic causes related to sight , hearing and motor functions, but it is not so easy to rule out mild mental retardation of the "garden variety" or emotional disturbance. As a matter of fact the learning characteristics of children labeled as learning disabled, mild mentally retarded, emotionally dusturbed and slow learners are very similar across these categories. The study by Ysseldyke, Algozzine, Shinn and McGue addresses this issue of overlap across categories, and casts doubt on the meaningfulness of the classification learning disabled as indicative of a definite learning syndrome.

A third problem arises out of the process of norming. Test publishers generally draw samples of students for test norming using a statistical strategy that would result in the proportionate representation of various socioeconomic and ethnic groups. But it is known that the majority of children classified as learning disabled, or retarded, come from the lower socioeconomic strata of our society and ethnic minorities. Wher ability to cope with work in school (achievement) is used for initial identification, it is known that the children so identified also come largely from the lower socioeconimic strata and minority groups. Thus in the process of normative assessment, one group, minorities, is assessed against the expectations of the large

majority in which there is a strong white middle class representation. This results in biased assessment, but the existing regulations make it almost impossible to do otherwise. Duffey, Salvia, Tucker, and Ysseldyke (1981) discuss the problem of nonbiased assessment at length, and conclude:

> We cannot achieve meaningful nonbiased asssessment by using current norm-referenced devices and current classification systems; but it may be possible to make progress in achieving nonbiased assessment by using criterion-referenced tests and classification systems based on purely educational criteria.

An alternative procedure which uses criterion-referenced tests and a conceptual scheme based on educational criteria is described and illustrated in a later section of this paper.

Some Inherited Problems and Related Research .

While the major effects of government regulation and public involvemnet were the broadening of the umbrella for the category learning disabled, and the removal of etiological terms such as exogenous retardation, perceptual deficits, minimal brain dysfunction and brain injury from current educational classifications, some concepts which were used to describe behavioral manifestations continue to protrude into the current educational scene. Some of these concepts and related research are discussed below.

Dyslexia and Reversals :

The term dyslexia literally means inability to read. However, the term is endowed with two meanings, an educational one and a medical one. Educators and psychologists generally use the term to connote functional

inability to read, without implying cause. On the other hand, those with medical, psychiatric and neurological training more often use the term to imply inability to read on account of neurological impairment. Morgan first referred to this medical aspect of the problem in 1896. Orton wrote about "word blindness" in his 1925 text on the problems of school children, and for several years proposed and elaborated his theory of perceptual confusion attributing cause to delayed development or lack of cerebral dominance. It is difficult to prove or disprove this theory, and it is still regarded as the theoretical basis for some corrective reading programs. While some recent research has brought to light a disarrangement of some brain cells in the left hemisphere of two persons identified as dyslexic, the writer noted that the most effective treatment is still thorough and systematic steps in the teaching of reading to these people: "heavy emphasis on phonetic training... reinforced by unrelenting word-recognition drills that use an imaginative array of sensory techniques" (Discover, August 1983, pp 34-42)

Reversals are of four different types, namely, confusion between letters that are mirror images of each other, reversal of short words, reversal of certain letters within words, and change in word order. The theory of mirror images, as proposed by Orton, can only apply to reversals of the first type, and such errors only account for about 10 percent of the total number of reversals generally made (Moyer and Newcomer). Liberman, Shankweiler, Orlando, Harris and Berti (1971) observed that errors of orientation (the mirror image type) were not covariant with reversals in letter sequence. There is some evidence to suggest developmental delay as a possible causal factor in reversals.

Gibson, Gibson, Pick and Osser (1962) found that the incidence of reversals drops as one compares the performance of 4, 5, and 7 year olds on discrimination tasks. It is conceivable that certain levels of neurological maturation may be a necessary condition for the fine visual and auditory discriminations used in reading, but such thresholds have not yet been set, and the weight of evidence from educational and psychological research supports the view that reversals in reading "often result from the child's inexperience with directionality as a salient feature in making discriminations, and with proper instruction even 4 and 5 year olds can learn to distinguish between reversible letters" (Moyer and Newcomer). These authors reviewed 12 studies which provide evidence supporting this point of view. Allowing for the possibility that brain damage could cause some problems in reading, positive evidence of neurological insult is difficult to establish, and when found, it cannot be claimed that such a finding is necessarily predictive of reading or other learning problems (Kinsbourne, 1973). At best, reading disability, attributable to neurological impairment, can only be inferred when other causes are not known. Bond and Tinker (1967) observed that dyslexia could not be distinguished from a severe reading disability, and questioned the value of the term for reading clinicians. Kinsbourne (1973), among other writers, emphasizes that letter orientation and sequence are essentialy learned competencies, and that the learning process includes the discrimination of forms, orientation, and sequence, as well as the relationships between sounds and symbols. A breakdown could occur in any one or more of these aspects, and thus jeopardize the process of learning to read. Thus if visual and auditory problems are identified and remedied, there may be no need to invoke the

concept of dyslexia with its neurological connotation.

Hyperactivity and Hyperkinesis :

These terms are often used as if they were either synonimous with, or an essential part of, learning disabilities. Strauss and Lehtinen (1947) considered hyperactive responsiveness as being primarily responsible for learning deficits in brain-damaged children. The Diagnostic and Statistical Manual (DSM III,1980) of the American Psychiatric Association does not use these terms to describe any disorder. Instead, it uses the category "Attention Deficit Disorder", occurring with or without hyperactivity, and does not imply cause. The manifestation which is relevant for management and treatment in education is attention deficit, that is to say, the inability to attend to a learning task. In some cases, inattention could be caused by emotional disturbance, environmental factors such as distraction, discomfort, or pain, or educational factors such as mismatch between the learning capability of the child and instruction. Medical evidence supports the fact that some childen are hyperactive because of constitutional disorders, for example, biochemical imbalance, and such childen can be appropriately treated with medication (Kinsbourne, 1973). Medication has the efect of calming such children so that they are better able to focus attention on learning tasks, but does not cure the biochemical imbalance. Such imbalance could result from biological, social, or psychological causes. The important point to be noted is that the ability to focus attention is learned, and reinforcement plays a key role. Our methods of child rearing could possibly be responsible for cultivating some hyperactivity and short attention span; hyperactivity

and associated inattention are rare in the Orient. Caution must, therefore, be exercised in attributing cause to the Attention Deficit Disorder so that appropriate medical treatment and/or behavior modification could be applied. Only some childen under the umbrella of learning disabled are hyperactive, and of these, only some have a constitutional problem which needs medical treatment.

Perceptual-Motor Impairment and Training :

When information received by the senses is processed and interpreted, the result may be a motor response. Sensory-motor and perceptual-motor functions have attracted the attention of philosophers, psychologists, physicians, and other life scientists throughout the ages. Since learning uses the same neural mechanisms as perceptual-motor functions, it is not surprising that both philisophers and scientists have attempted to establish a link between learning disabilities and perceptual- motor dysfunctions, and going one stap back to link these dysfunctions with sensory-motor impairment. Piaget (1936) emphasized the importance of early sensory-motor experiences in the development of a child's cognition or intelligence. Hebb (1949) stressed the importance or early motor learning in the development of cell assemblies in the cerebral cortex. Most of the pioneers in the field of learning disabilities, namely Warner, Strauss, Getman, Kephart, Barsch, Doman and Delacato, have advocated training in sensory-motor and perceptual-motor processes for the treatment of learning disabled children, the rationale being that such training would generalize and improve neural machanisms, which would in turn improve learning. Sensory and perceptual-motor programs are widely used in education, and the cruicial issue is

whether such training exercises do really result in the improvement of learning in school. The literature teems with examples of case studies put forward by advocates of these programs to demonstrate their efficacy, but convincing research evidence is still lacking. Hammil, Goodman, and Weiderholt (1974) reviewed 42 studies in which the efficacy of sensory-moror and perceptual-motor programs was assessed, and concluded that motor training procedures did not demonstrate that they significantly improved readiness skills, inteligence, academic achievement, and perceptual-motor performance in general. These programs did develop specific competencies in the types of tasks in which training was given, but such training did not generalize to the areas of learning mentioned above. Spache (1968), Harris (1968), and Grattan and Martin (1965) did not find any significant relationship between motor training and reading achievement. Do these findings negate the usefulness of sensory-motor training altogether?

On the positive side, Silver and Hagin (1971), who theorized that a frontal attack on perceptual immaturities could "accelerate the maturation of lagging functions," found evidence that "increased accuracy of perception was accompanied by improvement in oral reading and in reading comprehension." It must be noted that they focused on perceptual immaturities, capabilities that were latent, but not adequately developed. It would appear that a threshold of perceptual competencies is necessary for adequate cognitive functioning, and that many of these competencies are developed quite early in the child's life. In the case of immaturities or inadequate development, it is conceivable that instruction would bring about perceptual improvement and consequent improvement in those areas of learning using the skills

taught, but this does not suggest that the continued application of instruction would continue to bring about similar improvement. A point of diminishing returns is reached and further training does not improve learning.

A Conceptual and an Operational Alternative :

The eleven categories now identified for services under PL 94-142 are based on historical developments rather than differtiated learning characteristics. Moreover, the rules and regulations generated for implementing the law give only gereral guidelines for the identification of handicapped children in these categories. Only in the case of learning disabilities do the rules specify some operational procedures for determination, for example, performance not comensurate with one's age and ability, and a severe discrepancy between ability and achievement. Consequently, there is considerable overlap in the learning characteristics- both in terms of processes and content- of handicapped children across the 11 categories. In view of the fact that the broad educational goals for all children in our society are the same, and all handicapped children are entitled to an appropriate education, it is contended that a more productive approach to assessment and treatment would be to determine what competencies children have in areas of skill that are important for learning in school, and to teach to those competencies. The competencies listed in Figure 1 need to be acquired by children in all the conventional categories to the extent that their capabilities will allow. This is especially true of the latest and largest category, the learning disabled, since these students do not by definition have impairments which will preclude learning in these areas

of competence. Functional assessment of competence in each defined area could thus be used as a basis for designing instruction.

(Insert Figure 1 about here)

The Assessment of Basic Competencies (ABC) is a new battery of psychoeducational tests which have been specially designed for children who manifest learning problems in school. The purpose of the assessment is not to provide a measure global ability, such as intelligence, but rather to provide developmental and diagnostic information in clearly defined domains of competence so that instruction could be appropriately designed and implemented. The functional areas of assessment are listed in Figure 1 and defined in terms of clusters of skills. Each cluster is tested by several items. The domain Information Processing consists of three tests in Observing Skills, Organizing Skills and Relating Skills. Language consists of five tests in Understanding Words, Comprehending Expressions, Producing Expressions, Decoding and Reading. Mathematics consists of three tests in Number and Operations, Understanding Concepts, and Solving Problems. Each test consists of 100 items which range in difficulty from age 3 to age 15.

A child acquires many of these defined competencies prior to entering formal school; others are acquired during kindergarten, elementary school, or junior high school. The ABC battery has been designed to identify which competencies have been acquired and which are lacking, so that clinical teaching may be applied. The diagnostic version of the response form and the procedures for scoring and reporting have been designed to facilitate the process of matching

instruction with needs. The test manual suggests ways of developing the skills assessed, and lists resources which may be used for instruction. The tests can be scored and the report can be prepared manually, but a microcomputer program has been developed to facilitate the production on a 14-page interpretive in a short time. The ABC battery is based on a task-analytic model. The diagnostic unit is an instructional cluster of skills, and instruction is expected to address the component skills of each cluster in which there is a weakness. Even though these clusters are grouped into test areas and domains of competence, attention is not focused on underlying processes in the various test areas and domains. It is conceivable, however, that broad areas of competence could emerge from the generalized applications of competencies in the small clusters that are specifically defined.

The items in each of the 11 tests have been scaled and arranged in ascending order of difficulty. A specially designed latent trait scale (which ranges from 100 to 200 in equal -unit intervals) is used for reporting a Level of Competence. A Level of Competence thus represents a point in a learning continuum which ranges from age 3 to age 15 (or Grade 9) for most of the tests (illustrated in Figure 2). By using this scale, it is possible to test a child on successive occasions, and to evaluate growth even if different subsets of items are used in each assessment. For the benefit of users, the Level of Competence scale has been normed saparately for each test, so that it is possible to convert points on each scale into conventional scales such as developmental age, grade equivalent, percentile rank or standard score. While the latent trait scales offer some new possibilities for interpretation, it is still possible to use conventional standard scores (derived from the

latent trait scales) to evaluate if there are severe discrepancies between ability and achievement to satisfy current regulations for the assessment of learning disabilities. The average standard score for the three information processing tests can be used as a measure of ability, while the average standard scores for language and mathematics can be used as measures of achievement in these domains. It is not possible to use conventional scales such as grade equivalent, percentile rank, or standard score to measure growth over time, since these scales are not usually veritically equated, and do not consist of equal unit intervals across various age levels.

(Insert Figure 2 about here)

The developmental version of the response form presents the items in ascending order of difficulty, irrespective of the clusters of skills to which they belong. This arrangement emphasizes the developmental nature of the assessment, but the scores are computed and summarized in the same way as is done with the diagnostic version. Developmental assessment is mainly quantitative, while diagnostic assessment is mainly qualitative. The design of the ABC battery makes it appropriate for quantitative as well as qualitative assessment. Figure 3 illustrates a summary of scores as it would appear on the cover of the response form, as well as a graph which displays a profile for the student in terms of developmental age. Page 2 of the computer generated report consists of a summary of test scores with some interpretive comments, pages 3 to 13 contain qualitative information on performance in each test, while page 14 allows for open interpretive comments.

(Insert Figure 3 about here)

The Assessment of Basic Competencies differs from conventional ability and aptitude tests in that it clearly defines learned behaviors that are to be assessed and addressed through instruction. If the skills in which a learning disabled child is deficient are identified, then systematic instruction can be designed and undertaken in one or more of the content areas without the need for attributing cause of the learning disability. Informed opinion suggests that with appropriate remediation, a large proportion of the learning problems of children labeled as learning disabled would be remedied by the application of regular methods of systematic instruction, leaving a small proportion to be addressed by more intensive specialized methods. The critical need for learning disabled children thus seems to be the detailed diagnosis of learning deficits. The 100 items in each test are arranged about one unit apart on the latent trait scale; this dense continuous arrangement in 11 defined areas of competence makes the ABC battery the most intensive diagnostic instrument that is available for assessing the educational needs for learning disabled children. Tests of intelligence and aptitude, as well as some psychoeducational tests that are currently used do not provide such a broad and intensive basis for diagnosing educational needs, with the result that oblique inferences are often made about the competencies which these childen have or do not have.

In the development of the test battery, specialists in cognitive development, language, and mathematics, as well as school psychologists, reviewed the design and content of each test for appropriateness and

relevance to learning in school. This type of professional review helped to ensure the content validity of the tests. Table 1 presents some evidence of the criterion -related validity of the ABC battery. The moderate correlations between the ABC tests and other indicators of school success suggest that the ABC tests are measuring some of the competencies measured by the conventional indicators, but that they are also measuring some unique competencies of their own. The higher correlations with age and grade confirm the expectation that increasingly higher scores reflect developmental learning. The moderate correaltions with WISC Age again suggest that the two batteries are measuring some common developmental traits, but that they are also addressing some unique traits of their own. Reliability studies conducted at different grade levels indicate levels of reliability (ranging from .85 to .98) that are comparable to those found in other published tests of this type. (More detailed information on reliability and validity are reported in the test manual).

The ABC thus provides a useful combination of diagnostic (expressed in terms of clusters of skills) as well as developmental (expressed in terms of points along development continuums) assessment which enables a user to implement functional assessment and instruction of learning disabled children. It does so without sacrificing the ability to carry out conventional assessment to satisfy current regulations. In functional assessment one does not deny the possibility that some children's learning problems are due to neuropsychological causes; the position is taken that diagnosis of educational needs and appropriate instructional intervention take precedence over etiology.

References

Algozzine, B., Ysseldyke, J.E., and Shinn, M. Identifying children with learning disabilities: When is a discrepancy severe? (Research Report No. 47). Minneapolis, MN., Institute for Research on Learning Disabilities, University of Minnesota, 1980.

Bond, G.L. and Tinker, M.A. Reading difficulties: Their diagnosis and correction (2nd edition). New York: Appleton-Century-Crofts, 1967.

Clements, S.D. Minimal brain dysfunction in children (NINDS Monograph No. 3, Public Health Service Bulletin No 1415). Washington, D.C.: U.S. Government Printing Office, 1966.

Crinckshank, W.M. Learning Disabilities: Perceptual or other? ACLD Newsbriefs, Special Supplement, Sept./Oct. 1978, 7-10.

Cruickshank, W.M. and Johnson, G.O. (editors) Education of exceptional children and youth (2nd edition). Englewood Cliffs, N.J.: Prentice Hall, 1967.

Duffey, J.B., Salvia, J., Tucker, J., & Ysseldyke, J.E. Nonbiased assessment: A need for operationalism. Exceptional Children, 1981, 47 (6), 427-434.

Gibson, E.J., Gibson, J.J., Pick, A.D., and Osser, H.A. A developmental study of the discrimination of like forms. Journal of Comparative and Physiological Psychology, 1962, 15, 897-906.

Grattan, P.E. and Martin, M.B. Neuro-muscular coordination versus reading ability. American Journal of Optometry and Archives of the American Academy of Optometry, August, 1965, 42, 450-458.

Hammil, D., Goodman, L., and Weiderholt, J.L. Visual-motor processes: Can we train them? Reading Teacher, Feb. 19, 1974, 27, 469-480.

Harris, A.J. Diagnosis and remedial instruction in reading. In H. Robinson (ed.), Innovation and Change in Reading Instruction (Part 2). Chicago: University of Chicago Press, 1968.

Hebb. D.O. The Organization of behavior. New York: Wiley, 1949.

Kinsbourne, M. Diagnosis and Treatment: School Problems. Pediatrics, Nov. 1973, 52, (5), 697-710.

Kirk, Samuel A., Kliebhan, Sister Joanne, and Lerner, Janet W. Teaching reading to slow and disabled learners. Boston: Houghton Mifflin, 1978.

Lerner, J.W. Children with learning disabilities (2nd ed.). Boston: Houghton Mifflin, 1976.

Liberman, I.J., Shankweiler, D., Orlando, C., Harris, K.S., and Berti, F.B. Letter confusion and reversals of sequence in the beginning reader: Implications for Orton's theory of developmental dyslexia. Cortex, 1971, 7, 127-142.

Moyer, S.B. and Newcomer, P.L. Reversals in Reading: Diagnosis and remediation. Exceptional Children., April, 1977, 424-429.

Piaget, Jean. The origins of intelligence in children (Cook, Trans.) New York, International University Press, 1952. (Originally published, 1936).

Silver, A.A. and Hagin, R.A. Effects of perceptual stimulation on perception, on reading ability, and on the establishment of cerebral dominance of language: An experimantal study. Paper presented at the annual meeting of the American Academy of Child Psychiatry, 1971.

Somwaru, J.P. Assessment of Basic Competencies. Bensenville, Il.: Scholastic Testing Service, 1981.

Spache, G.D. Contributions of allied fields to the teaching of reading. In H. Robinson (ed.), Innovations and change in reading instruction (Part 2). Chicago: University of Chicago Press, 1967, 237-290.

Strauss, A., and Lehtinen, L. Psychopathology and education of the brain-injured child. New York: Grune and Stratton, 1947.

Ysseldyke, J.E., Algozzine, B., Shinn, M., and McGue, M. Similarities and differences between underachievers and students labeled learning disabled: Identical twins with different mothers. (Research Report No. 13). Minneapolis, MN.:Institute for Research on Learning Disabilities, University of Minnesota, 1979.

FIGURE 1
The Basic Competencies Assessed in the Eleven
Assessment of Basic Competencies Tests

LANGUAGE SKILLS

READING:
Literal and inferential comprehension-detail, main idea, sequence, cause-effect.
DECODING:
Knowing letters and sounds, discriminating between sounds, recognizing and pronouncing words.
COMPREHENDING AND PRODUCING EXPRESSIONS:
Using nouns, adjectives, adverbs, pronouns.
Using verbs, auxiliary, modal, link verb.
Using function words – prepositions, determiners, conjunctions, qualifiers, etc.
Understanding sentence structure.
Transforming sentences.
Knowing usage and idioms.
UNDERSTANDING WORDS:
Words for objects, descriptions, actions, categories, and abstract ideas.

MATH. REASONING SKILLS

SOLVING PROBLEMS:
Solving problems involving various applications in 1, 2, or 3 steps.
UNDERSTANDING CONCEPTS:
Sets and relations.
Number sentences and symbolic expressions.
Units of measurement – English and metric.
Units of money and combinations.
Geometry and graphs.
KNOWING NUMBER AND OPERATIONS:
Number and numeration.
Order.
Four operations with whole numbers, common and decimal fractions.
Conservation of number.

INFORMATION PROCESSING SKILLS

RELATING:
Identifying incongruent relations, inferring rules, completing analogies, solving combinations, making transitive inference, solving problems.
ORGANIZING:
Excluding from class, including in class, relating classes, ordering in sequence.
OBSERVING:
Comparing for similarity or difference, seeing and remembering, completing patterns, visualizing figures after rotation, integrating eye-hand activity, finding figure in background, conserving mass, length, weight, volume.

FIGURE 2
INFORMATION PROCESSING: OBSERVING SKILLS
Growth Curve Based on Smoothed Means for Grades
(Spring Norms)

A new equal-interval scale based on latent trait theory was designed for each of the eleven tests. These scales are based on the growth curves observed in each test area. This is the growth curve for one test.

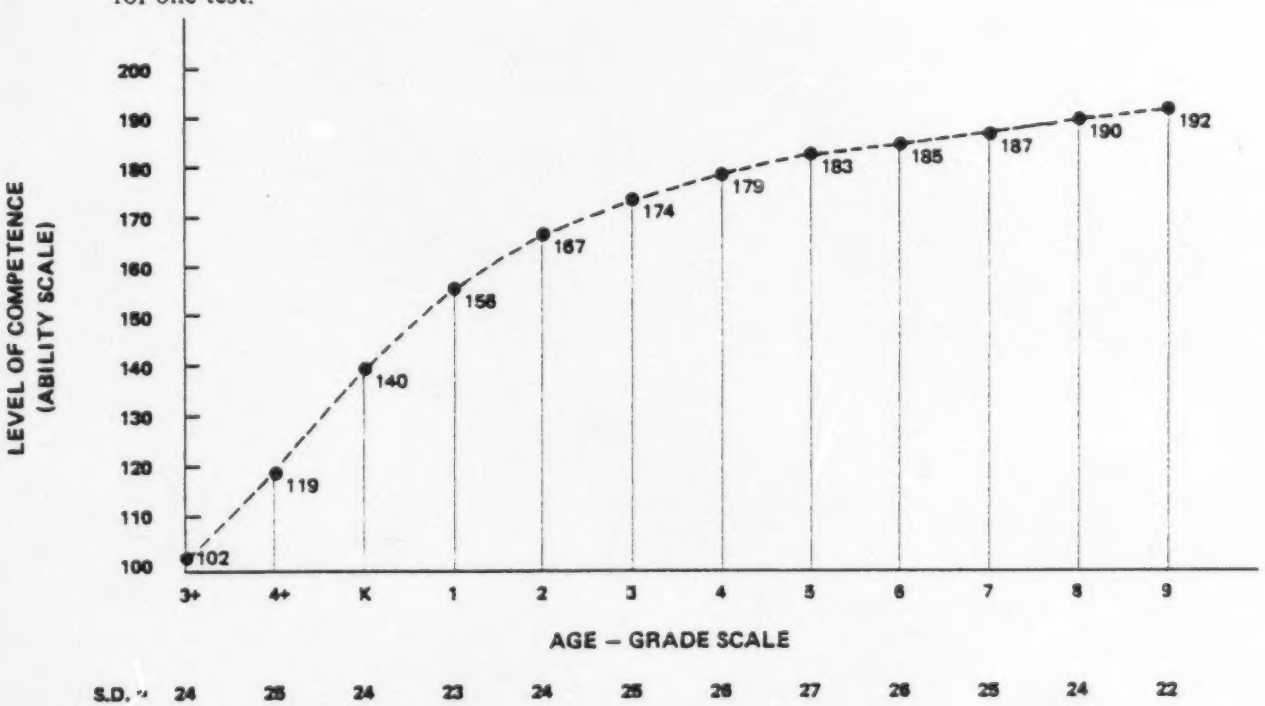


FIGURE 3

ASSESSMENT OF BASIC COMPETENCIES

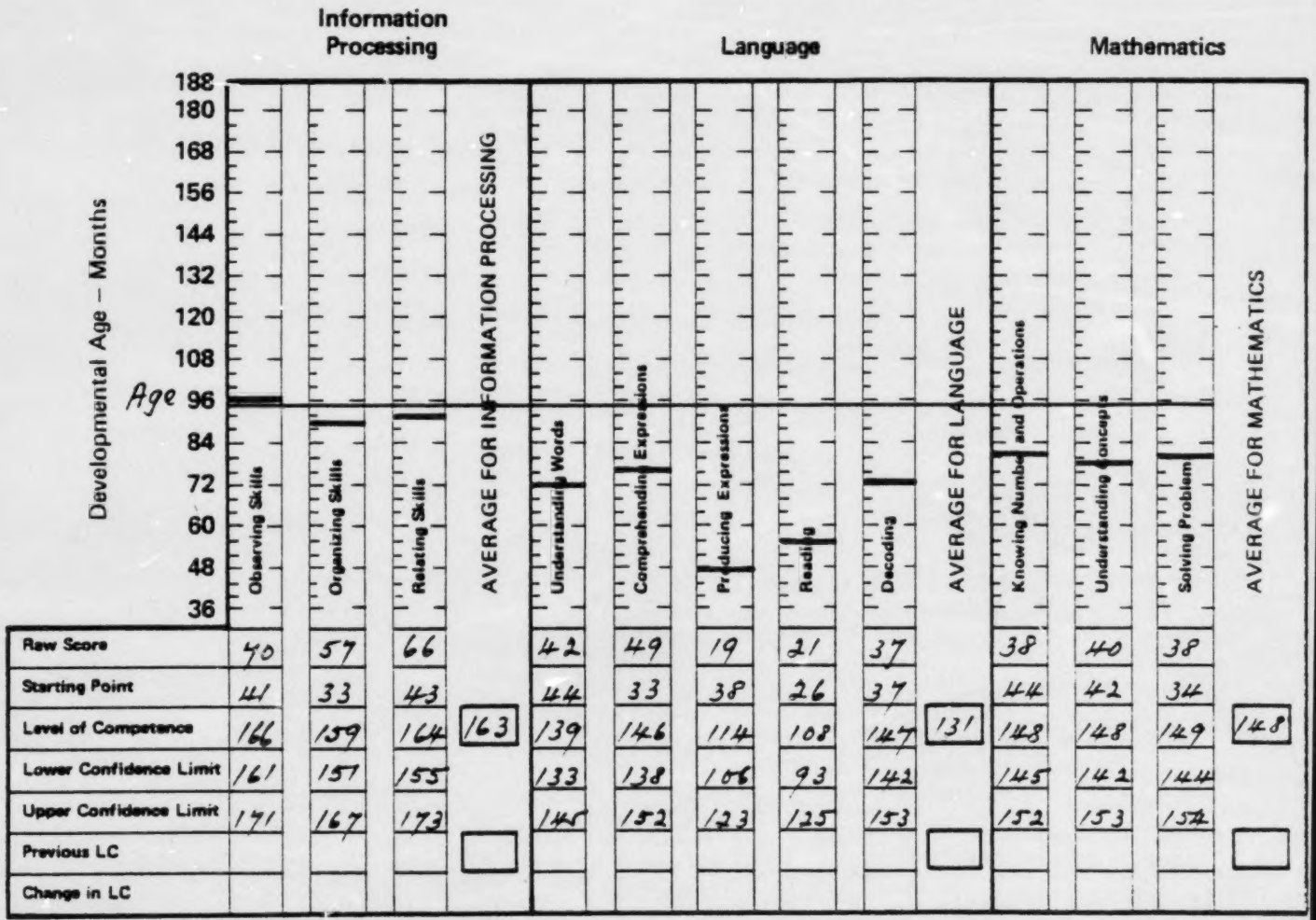
Response Form – Developmental Edition

Name Mitchell Robinson Date of Testing 78 / 4 / 19 (year / month / day)

School Hargraves Public School Date of Birth 70 / 5 / 27 (year / month / day)

Teacher Mrs. J. Doyle Grade 2 Age (nearest month) 95 Sex B

Reason for Assessment Not coping with learning in school – LD



	Observing Skills	Organizing Skills	Relating Skills	AVERAGE FOR INFORMATION PROCESSING	Understanding Words	Comprehending Expressions	Producing Expressions	Reading	Decoding	AVERAGE FOR LANGUAGE	Knowing Number and Operations	Understanding Concepts	Solving Problems	AVERAGE FOR MATHEMATICS
Raw Score	40	57	66		42	49	19	21	37		38	40	38	
Starting Point	41	33	43		44	33	38	26	37		44	42	34	
Level of Competence	166	159	164	163	139	146	114	108	147	131	148	148	149	148
Lower Confidence Limit	161	157	155		133	138	106	93	142		145	142	144	
Upper Confidence Limit	171	167	173		145	152	123	125	153		152	153	154	
Previous LC														
Change in LC														
Developmental Age	96	89	92	92	72	77	47	56	73	65	81	78	80	80
Percentile Rank—Age	49	42	45		9	26	1	1	1		13	12	21	
Standard Score/NCE														
Grade Equivalent	2.7	2.3	2.5	2.5	1.0	1.2	Age 3.9	Age 4.5	1.0	?	1.6	1.3	1.5	1.5
Percentile Rank—Grade	49	44	45		10	22	1	1	1		6	8	17	
Standard Score/NCE														

Referred by: The Principal Assessed by: Twylla P. Somwaru

Published by Scholastic Testing Service, Inc., Bensenville, IL 6010
Printed in the United States of America.

TABLE 1

ABC CORRELATION STUDIES

SUBTESTS AND GROUPS	VALIDITY																DEVELOPMENTAL TRAIT		
	SRA Assessment Survey: Grade 2				SRA Assessment Survey: Grade 6				WRAT: Gr. K-8			Teachers' Ratings: Gr. 6							
	Composite	Reading	Language	Math.	Composite	Reading	Language	Math.	Reading	Spelling	Arithmetic	General Ability	Language	Reading	Math Computation	Math Problems	Correlation with Age	Correlation with Grade	Correlation with WISC Age
Observing	.32	.37	.29	.19	.67	.53	.57	.60	.64	.77	.76	.64	.56	.53	.59	.60	.72	.75	.65
Organizing	.43	.40	.46	.39	.65	.53	.59	.56	.64	.78	.75	.62	.58	.57	.59	.61	.74	.76	.64
Relating	.45	.51	.38	.43	.76	.67	.67	.63	.61	.74	.76	.68	.66	.58	.59	.58	.72	.75	.59
INFORMATION PROCESSING	.49	.53	.46	.42	.74	.62	.66	.63	.66	.79	.78	.69	.65	.60	.63	.64	.76	.79	.65
Understanding Words	.49	.47	.51	.44	.56	.55	.59	.44	.66	.74	.75	.42	.41	.45	.43	.39	.72	.74	.62
Comprehending Expressions	.34	.37	.32	.25	.57	.49	.59	.47	.63	.76	.75	.44	.44	.49	.48	.48	.69	.72	.62
Producing Expressions	.47	.51	.44	.42	69	.62	.67	.53	.69	.80	.70	.58	.57	.53	.50	.54	.77	.79	.62
Reading	.71	.69	.70	.55	.71	.62	.63	.60	.60	.70	.48	.71	.68	.63	.65	.65	.63	.65	.56
Decoding	.78	.71	.73	.62	.61	.56	.70	.37	.65	.75	.55	.60	.61	.58	.43	.52	.72	.73	.52
LANGUAGE	.70	.70	.68	.58	.67	.56	.65	.55	.72	.85	.75	.63	.62	.58	.59	.59	.78	.80	.65
Knowing Number and Operations	.48	.55	.44	.49	.74	.60	.65	.67	.73	.85	.84	.74	.70	.72	.69	.70	.80	.83	.64
Understanding Concepts	.58	.54	.48	.49	.81	.65	.66	.76	.66	.79	.79	.75	.71	.71	.78	.79	.79	.81	.61
Solving Problems	.60	.61	.54	.60	.63	.54	.47	.59	.67	.78	.82	.66	.62	.63	.61	.64	.81	.84	.60
MATH REASONING	.62	.63	.55	.59	.79	.65	.64	.74	.71	.83	.84	.79	.74	.75	.77	.79	.82	.85	.63
N =	51	51	51	51	45	45	45	45	89	89	89	45	45	45	45	45	159	159	70